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THE REFRACTIVE INDEX AND OPTICAL ROTATION OF COMMERCIAL VOLATILE OILS.*

BY AZOR THURSTON.

Having had occasion to examine a number of essential oils, the writer has compiled the results of the determinations of the refractive indices of same. They were commercial oils, but pure, so far as could be determined by a partial examination. Care was taken to make the reading of the refractive index at exactly 20° C. It should be understood that slight variations should be expected in the refractive index of different samples of an oil.

The optical rotation of a number of the oils tabulated was determined by the author, but some were compiled from the United States Pharmacopoeia and other reliable sources and have no reference to the particular sample examined—they simply show what the optical rotation of the oil should be.

Oil.	Refractive index at 20° C.	Optical rotation in 100 mm. tube at 25° C.
Allspice (Berries)	1.4975	0° to —4°
Bay	1.4937	—3°
Bergamot	1.4710	+15.3°
Anise	1.4684	+1° to —2°
Cade	1.5037	.....
Cajuput	1.4711	—4° (does not exceed)
Camphor	1.4685	+16.5°
Caraway (Dutch Seed)	1.4884	+70° to +80°
Cassia	1.6073	+1° to —1°
Cedar Leaf	1.4677	+59° 25′
Cedarwood	1.4984	—25° to —40°
Citronella	1.4857	—5° to —21°
Cloves	1.5351	—1° 10′ (does not exceed)
Cloves (Eugenol)	1.4697	Optically inactive
Cubebs	1.4986	—20° to —40°
Erigeron	1.4903	+45° to +55.3°
Eucalyptus	1.4624	—10° to +10°
Eucalyptus (Eucalyptol)	1.4601	Optically inactive
Gingergrass	1.4933	—2° 8′
Hemlock	1.4710	—20° 54′ to —23° 55′
Lavender (Garden)	1.4731	—1° to —10°
Lavender (Technical)	1.4668	.....
Lemon	1.4779	+57° to +64°
Lemongrass	1.4913	+3° to —3°
Mace	1.4832	+10° to +20°

*Read before Scientific Section A. Ph. A., New York meeting, 1919.

Oil.	Refractive index at 20° C.	Optical rotation in 100 mm. tube at 25° C.
Nutmeg	1.4837	+12° to +30°
Origanum	1.4841	—15° 36′
Pennyroyal	1.4821	+18° to +22°
Peppermint	1.4636	—23° to —33°
Pine Needles (Siberian)	1.4729	—4.5° to —9°
Sandalwood	1.5061	—15° to —20°
Sassafras (Artificial)	1.5273	.....
Sassafras (Natural)	1.5299	+3° to +4°
Sassafras (Safrol)	1.4684	.....
Spearmint	1.4894	—38° to —55°
Spruce	1.4706	—29.27°
Thyme (Red)	1.4925	Slightly levorotatory
Thyme (White)	1.4903	Slightly levorotatory
Wintergreen (Methyl salicylate)	1.5379	.....
Wintergreen (Birch)	1.4971	.....
Wintergreen (Natural)	1.5029	—1.5° (not exceeding)
Wormwood	1.4741	.....

In the determination of adulterations in essential oils the refractive index or the optical rotation, alone, might not be of much value, but taken together with other constants they are often of prime importance.

THE CHLORAMINES:* THEIR PREPARATION AND USES.

BY ISAAC F. HARRIS.

The war in Europe has developed a vast number of new antiseptics and disinfectants during the last few years.

Pressure has been brought to bear upon the chemical profession to create and produce active, efficient, powerful, non-irritating, non-toxic and economical germicides particularly adapted to the sterilization of infected wounds.

To combat the multitudinous infection of war wounds there have arisen:

Antiseptic dyes (malachite green and acriflavine), eupad, eusol, compounds of mercury, silver, iodine, bromine, and, lastly, Dakin's solution and the chloramines.

These latter are the special subject of our consideration here.

In the same manner that the war has forced the development of our industrial life, it has, likewise, stimulated pharmaceutical and chemical growth, especially in their applications to clinical medicine and surgery.

When our war surgeons faced a rampant infection upon a scale hitherto unknown to mankind, they appealed to the chemists to solve this problem.

All of the older and well-known antiseptics failed, in some quality, to fulfil the demands. Salts of mercury were too toxic, phenol was inadequate, compounds and salts of silver were too expensive and too toxic to tissue, formaldehyde was too irritating, while tincture of iodine—anything in alcoholic solution—was too expensive and irritating.

Thus, one by one, they were abandoned.

What was the problem?

*Read before Scientific Section A. Ph. A., New York meeting, 1919.